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ABSTRACT

Longitudinal educational research in Sweden is described, with emphasis on research used for educational planning and evaluation. Educational reforms have reflected the societal goal of improved welfare for the whole population. Research is generally supported by the National Board of Education and conducted by universities. To perform educational planning in accordance with society's goals, longitudinal studies are needed, as well as information about resource allocation. In 1985, Swedish educational authorities, National Board of Education, and National Board of Universities and Colleges proposed that long-term funding be allocated for the best-designed existing longitudinal studies: (1) Malmo study, originally started in 1938 with 1,542 third graders in the city of Malmo in Sweden; (2) Metropolit study, started in 1964, consisting of 15,000 children born in Stockholm in 1953 and emphasizing sociological and family behavior; and (3) Orebro project, started in 1965 for all Orebro children born from 1952 to 1955, focusing on adjustment, behavior, and achievement. Two other projects are discussed in detail: the Individual Statistics Project (ISP), begun in 1961, studying educational outcomes and the effect of the 9-year comprehensive school; and its successor, Evaluation through Follow-up, known in Sweden as UGU. Three new cohorts were selected to study the same topics as ISP. (GDC)

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LONGITUDINAL STUDIES (OF YOUTH) IN SWEDEN

A tool for educational planning and evaluation.

Paper presented at the 1986 AERA Annual Meeting.
San Francisco.
Symposium 8.08

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This paper describes research within longitudinal data bases, used for educational planning and evaluation. It provides some introductory information about educational reforms, reform strategies, research policy and knowledge needs in the political process.

All in all five longitudinal studies with reference to education have since 1985 been financed by special grants, decided upon by the Swedish Parliament. Two of these, the Individual Statistics Project and its successor Evaluation through Follow-up, are described in some detail.

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LONGITUDINAL STUDIES (OF YOUTH) IN SWEDEN

A tool for educational planning and evaluation

1 Educational Reforms in Sweden

During the last four decades the Swedish educational system has been continuously reformed from a system of parallel schools to a comprehensive school system for students aged 7 to 16. Upper secondary education has grown into an integrated system entered by more than 90 percent of the students leaving compulsory school. Here they can choose between three-year theoretical, two-year theoretical and two-year vocational study lines, most of which confer general eligibility for higher education at the universities. Admission to higher education has increased substantially due to a reform process, initiated during the late 1960's.

Educational reforms have played a very important part in a reform of Swedish society as a whole, aimed at increased welfare for the whole population.

2 Reform strategies

The pathway to political decisions regarding education normally runs via government-appointed commissions. These commissions have in fact become a crucible for the creation of Swedish reform policy. They represent an essential ingredient in the central government system and as such they operate somewhat differently from their counterparts in other countries.

The initial stage in this committee system is for the appropriate minister (in this case the Minister of Education) to write instructions for the particular committee's work and to receive government authorization to appoint its members and secretariat.

Educational committees are normally composed of:

a) Parliamentary or other political party representatives

b) Representatives of interested parties within the educational system - usually teachers and school administrators and

c) Special experts in educational research and development work.

After investigative work usually lasting 2 - 5 years, the committee publishes its final report including recommendations for action. This customarily includes both a timetable for putting into effect the proposed reforms and a cost estimate for these measures. The series of reports published

by a committee often incorporates scientific and statistical studies of the issue covered. During the reform period since 1950 a number of doctoral dissertations in education have also been written as parts of committee reports on educational matters.

The committee presents its work to the Minister of Education, who is normally expected to send the final report and appended special studies to all public agencies affected by the work of the committee, as well as to organizations representing teachers, parents and students, and to special-interest and voluntary organizations of various kinds, e.g. popular movements. Municipal authorities as well as universities and colleges affected by the committee's recommendations, also receive a copy of the report.

The organizations to which these publications are circulated often put in a large amount of work studying the report, the background material on which it is based, the recommendations it contains, the timetable proposed for the changes it recommends, and the amount the reform is expected to cost.

As a rule the central government introduces a bill in Parliament based on the committee's recommendations and the comments subsequently made on them. It only seldom happens that a committee report does not result in a government bill being submitted to Parliament. It is thus characteristic of Swedish reform strategy that an issue that has been raised finally ends up before Parliament in one form or another. Another characteristic is that the lag between the presentation of a committee report and the subsequent Parliamentary decision is comparatively short.

3 Research policy

The importance of R&D for educational reform work in Sweden has often been discussed in the international literature. It has sometimes been contended that educational policy, and in particular the reform decisions taken, have been based on scientifically established results. This is not quite correct. Reform decisions have been based far more on general attitudes among the politicians regarding educational policy. However, one should not overlook entirely the fact that the Swedish community has succeeded in bringing about a dialogue between politicians, administrators and researchers so that research findings have had an impact upon the making of educational policy. By virtue of their independent status, researchers have been able to shed light on how educational issues interrelate with social, economic and cultural problems.

This has in particular been true of the research conducted within one longitudinal study, The Individual Statistics Project. It has been and is still being used in the reform work during the 1970's and 1980's in upper secondary education and in adult education. Its successor, UGU, will also be made use of in the evaluation of compulsory school.

Resources for educational research are of two main kinds. On the one hand, there are fixed resources allocated by Parliament for research appointments and research departments at the universities. On the other, there are flexible resources from R&D funds of research councils and central national authorities.

Research funds from national authorities, like the National Board of Education, NBE, form a part of Swedish research policy often named the sectoral principle. In short, this principle states that every national authority should have responsibility for research and developmental work within its sector of society (education, labor market, social welfare, defense, energy, nature conservation etc), initiate research, finance research and make use of research in its administrative and policy work. This research should primarily be conducted within universities and rely on the research competence built up there. Thus research institutes within national authorities or otherwise outside universities are not regarded as desirable in Sweden. But the national authorities should also help to build up university competence, both by funding research and by drawing researchers' attention and interest to sectoral needs and problems.

Educational research in Sweden has to a substantial extent been financed by national authorities, mainly the NBE, ever since 1962. During a period in the mid-1970's up to 70 percent of ongoing educational research projects were financed by NBE funds.

Among those projects, we find some of the longitudinal studies carried out in Sweden, all of which are still operating, although with different degrees of intensity.

Before I enter into the description of what is by far largest and most valuable of these projects, I will say a few words about knowledge needs in the political process and how Swedish politicians and national educational authorities have chosen to deal with the crucial question of permanent basic funding of longitudinal research.

4 Knowledge needs in the political process

Education in Sweden is a substantial part of the welfare system. The political process, e.g. debate in society and collective decision-making needs knowledge support

for judgements of welfare
for planning of welfare measures to be taken
for evaluation of welfare measures taken.

It has always been considered important for public activities to operate in an effective and rational manner. Judgements of welfare, which as far as education is concerned include judgement of the general direction of education and of students' levels of knowledge and skills, could operate with cross-sectional data to get the neccessary knowledge

base. But as a means of planning education in society so as to ensure that this planning is efficient according to educational goals, cross-sectional studies are insufficient. Nor can you use them for evaluation of measures taken. For both these kinds of knowledge requirements, longitudinal studies and follow-ups on student cohorts are neccessary. These methods are closer to the controlled experiment which is the ideal method if you need to evaluate or forecast the effects of some educational measure taken. Longitudinal studies are of course not sufficient for planning and evaluation - you also need information about how educational resources are economically and personally allocated to different parts of the educational system and to different groups in society.

5 Long-term financing of longitudinal studies

Longitudinal studies have been operating in Swedish educational research since the mid 1940's. The first study that was planned more directly in cooperation with educational planning, the Individual Statistics Project, started in 1961. Up till 1985 all longitudinal studies have been financed ad hoc, mainly on a year-to-year basis. It is probably correct to say that the financing problems have been overcome each year as both research councils and national educational authorities have given their due shares each year. But the situation became more and more crucial at the same time as the benefits from the studies, and above all from the Individual Statistics Project, became all the more apparent to educational planners, educational administrators, the researchers and to politicians.

The main funders and thus also the main users of some ongoing longitudinal studies arranged a conference in Autumn 1983 in which all interested and potentially interested parties took part. The last chapter of the conference report was given the challenging title "The common need and the common responsibility". To cut a long story short, the educational authorities, NBE and National Board of Universities and Colleges, NBUC, proposed in their annual budget request to government that special ear-marked funds should be created and that these funds should finance the build-up and maintenance of the five best-designed longitudinal studies with special reference to education operative at that time. NBE, NBUC and National Board of Statistics (NBS) together with research councils contributed to these funds by transferring the money allocated by them that year for the studies in question, in the hope of course that government would contribute with some fresh money as well. The proposal was accepted and government put it before Parliament in Spring 1985. The decision was in accordance with the proposal.

By this decision three important policy issues were made public and the subject of a top-level political decision.

1. Longitudinal studies are of crucial importance for educational planning and educational evaluation

2. Longitudinal studies cannot operate effectively and with the neccessary scientific quality unless there is substantial security of funding

3. Longitudinal studies need a competent and patient research staff and a moral support from politicians, authorities and the general public.

6. The five longitudinal studies

Before concentrating entirely on the Individual Statistics Project and its successor, ÖGU, I would like to say a few words about all five studies which have now been given a more permanent status and funding.

1. The oldest one is the Malmö study. It started originally in 1938 and consisted of all third-graders, 1 542 individuals, in a city in southern Sweden, Malmö. The first follow-up study was conducted in 1948 by Professor Torsten Husén and ever since, the Malmö study has been used for investigations of above all the effects of education on individual welfare. In later years great emphasis has been put on living conditions and health status as well as on family patterns. The children of the original cohort, a total of 2,471 individuals, are also included now.

2. Second in time is the Individual Statistics Project. It started in 1961 and was initiated by Professor Kjell Härnqvist, Vice Chancellor of the University in Gothenburg. I will come back to ISP.

3. Third came the Metropolit study. It started in 1964 and consists of all boys and girls born in 1953 in Stockholm metropolitan area, which amounts to about 15 000 individuals. It was initiated by Professor Carl Gunnar Janson, of the Department of Sociology at the University of Stockholm. It is mainly sociological in scope and studies four main topics:

a) social stratification and between-generation mobility with special reference to the role of the school system

b) deviant behaviour

c) family raising patterns

d) moving.

4. The fourth study is the Örebro project. It started in 1965 and consists of all children born 1952 och 1955 in a middle-large city, Örebro. The data base consists of about 2 200 individuals. It was initiated by Professor David Magnusson, of the Department of Psychology at the University of Stockholm. It is mainly Psychological in scope and aims at studying the individual and environmental factors that effect individual development and how these factors, isolated and in combinations, affect individual development. It is also sometimes called "Adjustment, Behaviour and Achievement".

5. The fifth study is the successor of ISP, called Evaluation through Follow-up (in Swedish the acronym UGU is used). It was initiated by Professors Bengt Olov Ljung and Ingemar Emanuelsson at the Department of Education, School of Education in Stockholm together with representatives from NBE, NBUC and NBS. I will come back to this study too.

Three of the studies are using samples of individuals from one city, thus from a relatively delimited area in Sweden while the two others, ISP and UGU, are using random samples from the whole country. They are also much larger studies, with more than 40 000 individuals altogether in the original samples, making about ten percent of each age cohort sampled.

The first four longitudinal studies were initiated by researchers. It is however important to note that Professor Torsten Husén (the Malmö study) was engaged already in the mid 1940's in research related to the reform of the Swedish school system. Professor Kjell Härnqvist (the Individual Statistics Project) had done some extensive research for government committees during the 1950's: on reserves for higher education and on the organizational structure of the new comprehensive school. From these studies as well as from contacts with John Flanagan and his plans for an American Project Talent it became obvious to Professor Härnqvist that you need a longitudinal design to be able to conduct valid research on the long-term effects of education.

The Örebro project was initiated by Professor David Magnusson. The main financing of the project - from 1965 to 1982 - has however come from NBE, thus to a great extent engaging the national educational authority in the study and in the use of research findings.

The successor of ISP - the UGU project - was initiated jointly by researchers and educational administrators. NBE has been the main financer of the project. The design of the study as well as the more detailed plans for its work have been decided upon in a special steering group of representatives from the national authorities and from the researchers. Thus UGU is more closely linked to educational policy than the other four. Yet it is a research project and the scientific responsibility lies with the researchers.

7 The Individual Statistics Project

The purpose of the project

The purpose of the Individual Statistics Project, ISP, and the data bank the project has established may be said to be threefold:

1. To make possible follow-up studies of large and representative samples of pupils, and to ascertain how geographic, social and psychological factors affect the choice of education and occupation, and to discover what changes the switch-over to the nine-year comprehensive school has caused in these respects.

2. To provid[e] a basis for studies concerned with the importance of vari[o]us environmental factors for change in intelligence both within a sample of pupils tested at different age[s] and between different samples of pupils tested at the same a[g]e level but at different points of time.

3. To supply data for investigations to elucidate how different type[s] of demographic and personality factors are associated wi[th] success in and adjustment to school.

The Design of the project

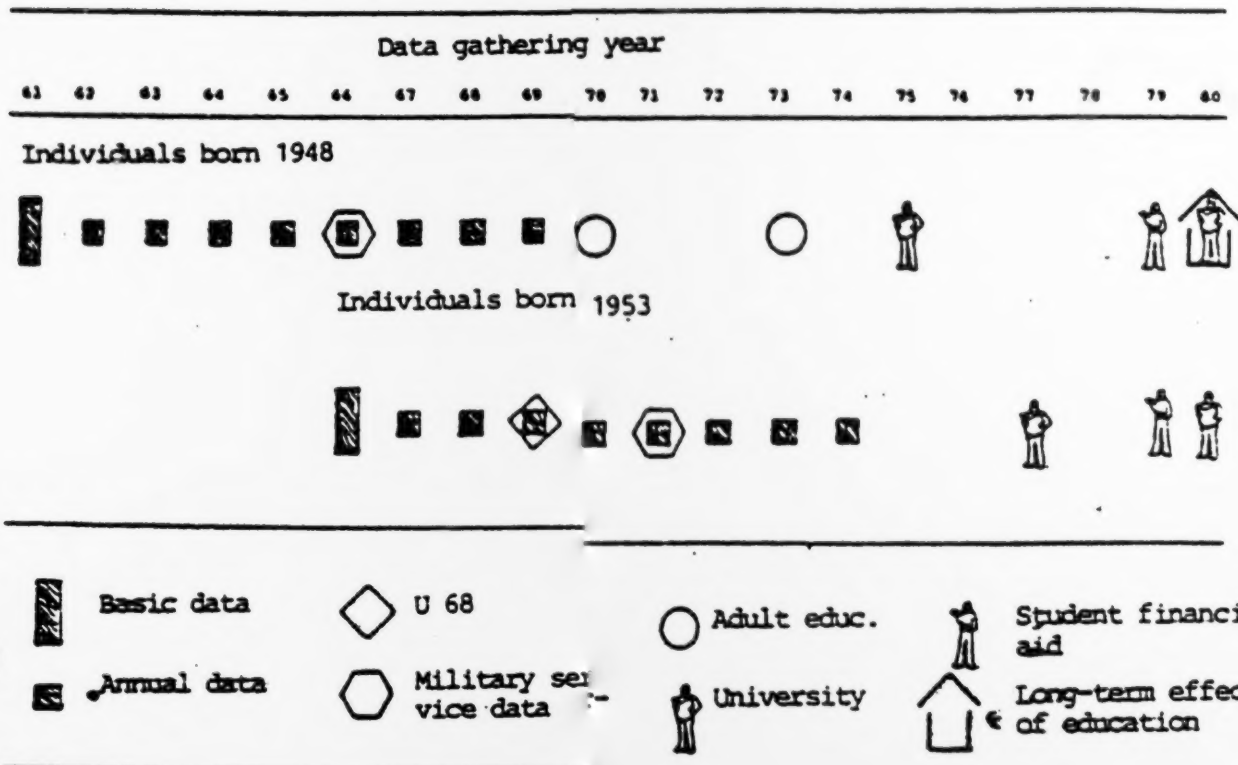

Data gathering year
61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
Individuals born 1948
Individuals born 1953
Basic data
Annual data
U 68
Military service data
Adult educ.
University
Student financial aid
Long-term effects of education

Figure 1: Design of the Individual Statistics Project

Sample sizes

For each cohort children born the 5th, 15th and 25th in any month were sampled. The 1948 cohort thus consists of about 12 500 individuals and the 1953 cohort of about 10 500.

Data

Basic data

a) information from school records, e.g. class, type of class, and school marks

b) information on personal background, such as parental education and occupation

c) scores on three intelligence tests; verbal, spatial and reasoning

d) scores on standardized achievement tests in Swedish, Mathematics and English, grade six

e) replies to questionnaires on the pupils' attitudes to school, their spare-time interests and plans for further study and work.

Annual data

Information from the school records on the type listed under 1a above. The information was collected as long as the pupils stayed at school.

Military enrolment data

This information consists, among other things, of data on level of education, the score on four intelligence tests and the replies to certain questions concerning adjustment to home, school and work. These data are available for men only.

U 68

U 68 stands for a government-appointed committee on the reform of higher education in Sweden, which started work in 1968 (U stands for university). On behalf of that committee some questionnaire data were gathered from about one third of the 1953 cohort. The questionnaire deals with attitudes towards higher education and towards different occupations.

Adult education

In 1970 and 1973 a questionnaire was sent to those about 2 000 men from the 1948 cohort which did not have any education above the compulsory school. Data gathered dealt above all with attitudes towards adult education among those men.

University

Data here are taken from the university enrolment register and include all persons who had started university studies; at what university, year of enrolment, and any examinations taken.

Student financial aid

From the Central Study Assistence Committee, which keeps a register over all individuals getting financial aid, information has been given for all those in the two cohorts who have asked for and been given student financial aid; how much money and during what periods money has been obtained.

Long-term effects of education

Data here belong to a special project using cohort data (Swedish acronym LINC). In Spring 1980 a questionnaire was sent to those belonging to the 1948 cohort. The main purpose of the questionnaire was to study the long-term effects of education. A total of 30 questions were put covering:

a) information about educational status

b) information about vocational experience and social situation after completion of education

c) information about the individuals'confidence in themselves; their capabilities and competence in various respects.

In 1982 and 1983 a sample of 500 from the 1948 cohort were interviewed. They were sampled so as to include individuals, equal according to basic data (intelligence and socioeconomic background etc) but with different patterns of post-compulsory education.

Still another study was performed in 1982, when a questionnaire was sent to all those in the 1953 cohort who had started university studies. The main purpose of that study was to investigate the effects of student financial aid on willingness to enrol in university education.

The successor to ISP - Evaluation through follow-up (UGU)

According to the original plans a new cohort, consisting of pupils born 1958, was to be sampled in 1971. For various reasons these plans could not be fulfilled.

During the mid 1970's, when the great value of ISP and its manifold use had been proved, researchers and also national authorities such as NBE, NBUC and NBS realized that a successor to ISP was needed. After thorough investigation and planning the follow-up project, UGU, was decided upon.

Responsibility for the new cohorts was entrusted to Professors Bengt Olov Ljung and Ingemar Emanuelsson at the Department of Education, Stockholm School of Education.

The first new cohort consists of pupils born in 1967 and they were sampled when they were in grade 6. The second cohort consists of pupils born in 1972, who were sampled in grade 3.

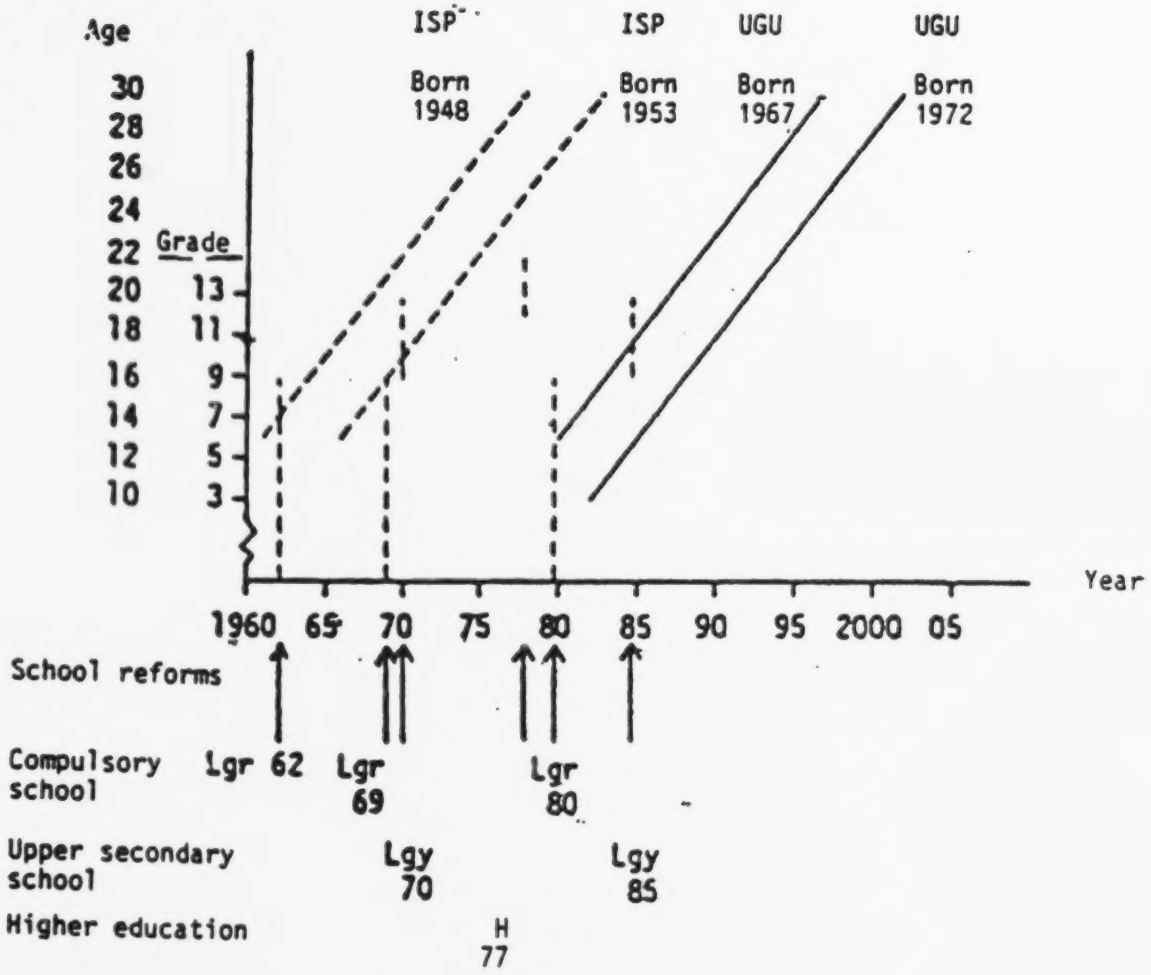
The complete scheme over the four cohorts/two projects is given in figure 2.

A different sampling technique was used for the new cohorts. A stratified sample of municipalities was drawn and then a systematic sample of classes within these. This gave a total of about 9,100 pupils in cohort 1967 and about 9,500 in cohort 1972. Yet the sample sizes are roughly the same for all four cohorts relative to the population, about ten percent of the age cohort.

The purposes of the UGU project are mainly the same as ISP. To a very large extent the same basic data and annual data are gathered. The future plans include very much the same kind of follow-up-studies, although future knowledge needs will be decisive for the actual studies to be undertaken.

Once the long-term financial problems had been solved (cf section 5) it was decided to sample a new cohort, pupils born in 1977, from grade 3 in 1987. The same pattern of basic and annual data will be followed for the new cohort. Responsibility will be taken at the Department of Education, University of Göteborg, by those who together with Professor Kjell Härnqvist have worked on ISP - Drs Allan Svensson and Sven Eric Reuterberg.

Figure 2: The Individual Statistics Project (ISP) and its successor Evaluation through Follow-up (UGU)



8 Some major studies using ISP

Over the years, ISP data have been used in a variety of studies. They fall into five main areas:

1. Studies of educational choices

2. Studies of factors affecting enrolment in higher education

3. Studies of factors affecting enrolment in adult education

4. Studies of long-term effects of education

5. Studies of intelligence changes

Most of the studies within the first area have dealt with upper secondary education. One of the major goals of Swedish educational reforms has been to promote equality of participation in non-compulsory education among different socio-economic groups as well as between male and female students. Several studies have been made at various levels of the system in order to evaluate trends and qualitative changes in participation. In these studies, ISP data have been most useful.

Two larger studies have been carried out under the aegis of government committees. One is the U 68 study (se figure 1) using data from the 1953 cohort. The other study was part of an inquiry on the reform of upper secondary education (1976 to 1981) and it used data from both cohorts. They focussed on the transition to upper secondary education and studied the effects of social background and early school achievement on that transition. From these studies as well from others, it could be seen that the reform of the school system did effectively increase enrolment in the academic study lines in upper secondary school, although to a lesser extent than was intended in the reform.

The main topics within the major studies are already made clear by some of the study titles:

- The social selection in upper secondary education
- The choices of theoretical education in relation to social and regional background factors
- Comprehensive school and upper secondary school
- Educational reforms and educational equality

Studies within the second area have dealt with factors affecting enrolment in higher education. One of the principal aims of reform policy for higher education has been to promote increased enrolment in university studies from groups that traditionally have had low enrolment shares. The university reform committee, U 68, was followed by a decision and in 1977 (H 77) the structure of university education as well as admission to higher education was changed.

The studies in this area using ISP data have been many in number and have dealt with a variety of questions: higher education recruitment, student progress in higher education, student choices of different parts of higher education and the effects of student financial aid on enrolment and study line choices - all in relation to previous school achievement and social background.

Many of the studies have been parts of government inquiries or have been used extensively by committees such as the Committee on Student Financial Aid and the Committee on Admission to Higher Education. Data and studies have also been used by the National Board of Universities and Colleges and studies have been reported by the National Board of Statistics in their annual reports. Some titles will convey a picture of the content:

- Study assistance and degree completion in Swedish higher education
- The importance of Financial Aid: The case of higher education in Sweden
- Financial aid and higher education recruitment

As regards the third area, data have been used from both cohorts (see figure 1) for two studies concerning the enrolment in adult education among individuals with short basic education. These studies, which were doctoral dissertations, were the starting points for the researchers' interest in adult education recruitment and gave educational authorities suggestions on how to induce individuals to participate in adult education.

The fourth area - the long-term effects of education - is the main research area for the originator of the ISP project, Kjell Härnqvist. As was reported in section 7 he has used the 1948 cohort for follow-up studies with both questionnaires and intensive interviews. I choose to quote him directly from a paper he gave at the First International Conferense on Education in the 90's: Equality, Equity and Excellence in Education, Tel-Aviv, Israel, December 1984:

"... I should like to stress the pervasiveness of the variable educational level. Responses in all areas are associated with education - sometimes most likely through direct influence from learning in the educational system, but very often as an indirect effect of education on life-chances in general - the occupational and social context which education give entry to. ..."

The studies within the LING-project (Swedish acronym for the project) are only just beginning and the studies to come will no doubt broaden our understanding of the importance of education.

Studies within the fifth area are of two main kinds:

- intra-individual intelligence changes and
- interindividual intelligence changes.

Comparative studies have been made of thirteen-year-old youngsters in 1961 and in 1966. The results were positive in as much as average performance on the three factors tested - verbal, spatial and reasoning - rose. Average scores increased slightly more for girls than for boys and more among students from rural areas than from big cities. These results were explained by two important events that occurred during the first half of the 1960's in Sweden. These are the successive establishment of the nine-year comprehensive school and the extended availability of television.

A follow-up has been carried out also using the 1967 cohort from UGU, and the main results showed a continous rise in the average level of spatial and reasoning intelligence but the positive trend as regards verbal intelligence has been broken.

Regarding differences between youngsters from different social groups, no particular changes seem to have occured. This is a consequence of the fact that the groups show similar developmental trends, which means that the initial differences were barely influenced. There are some striking differences between boys and girls. In the verbal test there were hardly any differences in 1961. However, in 1980 (the latest study) the girls were clearly ahead of the boys. Concerning spatial and reasoning ability, the boys were clearly ahead at the beginning of the 1960's. 20 years later these differences have practically disappeared.

There will be further studies using the 1972 cohort and later on the planned 1977 cohort ... and so on.

Interindividual intelligence studies have been reported in two major dissertations using data from the ISP: Allan Svensson's study Relative achievement: School performance in relation to intelligence, sex and home environment and in Gun Stahles' study Regional changes in test results during a five-year period.

This very short description of the research areas and studies within the ISP does no justice to the work done. But perhaps it shows that ISP is being and has been widely used both in research for academic merits, enabling researchers to present doctoral dissertations (about 15) and in policy-oriented research for educational planning and evaluation.

Hardly any research data base has been used by so many government committees as the Individual Statistics Project. The Swedish reform strategy described in section 2 is perhaps especially true for education. In most major educational reforms in education during the last decades data and results from ISP have played a part - directly or indirectly - in discussions and proposals on the continuous democratization of education.

9 Some problems connected with the building-up and maintenance of longitudinal studies

In section 5 I touched upon the most crucial factors affecting the build-up and maintenance of longitudinal studies. These are

a) the financing problem

b) the problem of finding researchers with interest and patience for working with longitudinal studies

c) the problem of getting moral support from educational planners, politicians and from the general public.

I will close this paper by saying a few more words about these problems.

The financing problem seems to be solved, at least for the time being and for those studies included in the special grant for longitudinal research. There will still be a year-by-year allocation of money but as long as the special grants exist the struggle for money will be kept in the family. Decisions about allocation of money to each of the studies is taken by the research council now responsible for the grants. This decision, however, is prepared by a group of researchers and administrators representing those authorities and research agencies that contributed to the grants by transferring the money. And they are unlikely to agree to their money being used for other purposes than those intended.

The problem of finding researchers with the interest and patience to run longitudinal studies has not been a very large one in Sweden, as can be understood from the amount of such studies and from their long history. Up till now, the financing problem has in fact been the most severe threat and it has affected the possibilities of engaging in full time positions the researchers involved in the studies. For many of them, however, the scientific benefit in terms of doctoral dissertations and other scientific merits has been considerable. As regards the Individual Statistics Project another stimulating factor has been the great demand for special studies, above all from government committees. ISP has been able to serve educational politicians and administrators to an extent perhaps even greater than the originator himself could have predicted when the project started in 1961. This is of course due to the excellence and acumen with which the project has been run over the years.

The third problem, however, is harder to overcome. During the very last months there has been an intense and overheated debate in Sweden about one of the longitudinal studies mentioned, the Metropolit. I will not go into any details about that particular debate and study but will give some background information about how the question of moral support from politicians and from the public is of crucial importance for any longitudinal study.

To do this I will have to say a few words about individual identification in Swedish data bases.

Every Swedish citizen gets, at birth, an individual number consisting of ten figures: date of birth (year-month-date) and a four-figure combination. Each number is unique and it follows the individual from birth to death. This number is the identification key to almost all parts of an individual's life as a citizen and through it you can get acess to most data bases that exist in Sweden.

Sweden is a very efficient society with a comparatively high level of welfare for its citizens. Data processing systems for different sectors of societal and individual life contain information regarded as neccessary for this efficient handling. Sweden also has a long tradition of national statistics, and Swedes are known for their civic loyalty in answering questions from authorities and others whenever asked.

The system of individual numbers makes extensive access to different data bases possible and it is also possible - and a widespread practice - to gather information from different data bases, thus creating new bases for permanent or ad hoc purposes. The system, however, is also very vulnerable to misuse, or rather, individuals are vulnerable to misuse of the system.

In 1973 Parliament passed a law on the use of individual numbers in the building up of data bases of all kinds. A special national authority, the Data Inspectorate, is responsible both for granting permission to create data bases with individual numbers as the identification key and for supervising the way in which these bases are used. All bases with individual number as the identification key are covered by the law, which also includes all research bases provided they are used in automatic data processing. The civil servants at the Data Inspectorate scrutinize all variables researchers and others want to include and can, as they have in fact done, forbid certain variables to be included if they find them a threat to personal privacy.

Over the years there have been discussions about the possibilities of handling research data bases differently from so called administrative bases, the aim of which is to get information about individuals, many times in order to take some neccessary measures for those individuals. Research data bases have not yet been used for any purposes connected with measures for single individuals except for medical bases. Data are never reported in such a way that any single individual can be identified. Researchers work according to ethical rules that give priority to personal privacy. So far, however, the Data Inspectorate and the politicians have been reluctant to accept any special treatment for research data bases or for national statistical data bases.

The debate on the Metropolit study highlighted the question of personal privacy as to a great extent it was built up with

data gathered from other, mainly administrative and official bases, and this was done without the individuals included in the study being fully informed.

Mass media, newspapers and television, as well as radio, started a very heated debate which ended up with the Data Inspectorate deciding that all data in Metropolit would have to be made anonymous. Thus any further data gathering is now out of the question.

The lessons to be learned from this is manifold. Without the moral support of politicians and above all of the general public themselves, longitudinal studies will be threatened. The key question is information. Unless researchers can inform the general public properly about the aims of their studies, the benefits to the individual and society and can show, convincingly, that the personal privacy of any one taking part in a study, is not threatened, longitudinal studies are at risk. The moral support must however also come from these authorities financing the studies and using the results from the studies in their planning and evaluation activities.

Another important lesson has to do with what you include in the data bases. One very striking conclusion drawn by professor Kjell Härnqvist about the Individual Statistics Project is that the benefit from attitudinal and other more personality-related data has been far less than the more sturdy data consisting of test results, marks and information about family background and other socio-economic data as predictors of individual development and for studies of the long-term effects of education.

The individual need for privacy must always be secured. If, as is the case with the Individual Statistics Projects, you get sufficient information from data less threatening to personal privacy, any inclusion of more personal and delicate data should be very carefully considered before it is decided upon. Other methods than the longitudinal studies may be more advisable in such cases.